ATTACHMENT 13
TANK SYSTEMS

13.1 Tank Systems

13.1.1 Agent Collection and Transfer System

The Agent Collection and Transfer System is used to collect the agent from the munitions or bulk containers being processed, and then to transfer the agent to the Agent Storage Room (ASR) tanks, or to ton containers for return to the chemical weapons stockpile.

13.1.2 Waste Liquid Collection and Storage System

The Waste Liquid Collection and Storage System collects liquid wastes, other than the chemical agents, from all process areas where they are generated. The system then transfers the liquid wastes-typically spent decontamination solution and Pollution Abatement System (PAS) brines-o storage tanks for subsequent treatment in the Liquid Incinerator (LIC) or the brine drum dryers, or sent to an off-site TSD facility. The only liquid wastes to be treated in the Brine Drying Area are PAS brines. However, both spent decontamination solutions (SDS) and PAS brines can be stored in the Brine Drying Area. Strict and detailed procedures listed in Standing Operating Procedures for the operation of the BDA are followed when changing from SDS to PAS brine storage (and vice versa) to ensure that the two types of liquids do not mix. Storage tanks will be flushed with process water. Process water will be introduced into a tank through intake lines using the pump system for that tank. All water used in the flushing process will be treated the same as the type of waste liquid that was in the tank, i.e., PAS brines dried and SDS incinerated or neutralized.

13.1.3 Description of Tank System Installation and Testing Plans and Procedures

The design standards and specifications are listed in Table 13-1 and are available at USACAMDS Engineering.

13.1.3.1 Agent Tanks

Agent tank storage consists of seven tanks labeled as shown in Table 13-1.

13.1.3.2 Waste Liquid Tanks

Waste liquid tank storage consists of five waste liquid holding tanks located in the Brine Drying Area (BDA), labeled as shown in Table 13-1. These five tanks store pollution abatement system (PAS) brines and spent decontamination solutions. Also, there are two tanks installed in the Toxic Maintenance Facility (TMF), as shown in Table 13-1. These tanks normally store spent decontamination solutions. They can also be used to store liquid laboratory wastes.

13.1.4 Location, Dimensions and Capacity of Each Tank

Specific information on the storage tanks for agent, PAS brine, spent decontamination solutions, and laboratory waste is given below and in Table 13-1.

13.1.4.1 Agent Collection and Transfer System

Dimension and capacity information for the agent collection tanks 1 through 6 is given in Table 13-1.

Tanks SEG-T1 and SEG-T2 are located in the shrouded and ventilated area between Explosive Containment Cubicle No. 1 (ECC No.1) and the DFS enclosure; they are used to collect agent generated by draining munitions (mines and rockets) in ECC No. 1. Tanks MDF-T3 and MDF-T4 are installed in the shrouded and ventilated Multipurpose Demilitarization Machine (MDM) processing area, and are used to collect agent drained from projectiles disassembled in the MDM and agent drained from bulk items in the Bulk Item Facility (BIF).

Tank LIC-T5 is located in the LIC primary chamber. Tanks ASR-T6 and ASR-T7 are located in the Agent Storage Room (ASR), and serve as supply tanks to the LIC. Agent from the other agent storage tanks (see above) is pumped to these tanks before and during operation of the LIC. Additional details on these tanks are provided in Table 13-1.

13.1.4.2 Waste Liquid Storage/Treatment System

There are 14 permitted waste liquid storage tanks in use at USACAMDS. Two tanks are in the TMF, five in the BDA, two in the Multipurpose Demilitarization Facility (MDF), two in the Explosive Containment Cubicle/Segregation (ECC/SEG) area and three in the LIC area.

- Waste liquid is collected from the following process areas within USACAMDS:
- ECC No. 1 and No. 2, BIF, and MDF
- DFS, MPF, and LIC
- PAS for the LIC, DFS, and MPF
- Personnel showers adjacent to toxic areas
- TMF and Site Medical Facility (SMF)

The waste liquid is collected into sumps in each of these areas. Drawings showing a schematic layout and description of various sumps are listed in Table 13-2. The waste liquid (usually laboratory liquid wastes and spent decontamination solution) is pumped to the waste liquid storage tanks in the TMF. It is then fed at a controlled flow into the LIC.

Waste liquids generated in the ECC No. 1, ECC pit, and toxic area between the ECC No. 1 and furnace enclosure are pumped to one of two waste liquid holding tanks (TMF-1 or TMF-2) located in the TMF.

Waste liquids from personnel showers and wash down operations in the MPF, LIC, MDM, and Bulk Drain Station (BDS) are also pumped to one of the two holding tanks in the TMF. These wastes are monitored for agent and then sent to be incinerated or placed in approved containers and sent to an approved commercial TSDF.

All PAS brines to be dried are pumped to the BDA and are held in the five waste liquid holding tanks until they can be processed by the twin drum dryer system. The brine can be processed through an evaporator to reduce water content and provide more efficient operation of the dryers.

All PAS brines are sampled and certified below the drinking water standard before they are transferred to the brine holding tanks. Continuous agent monitoring takes place in the work area around the drum dryers.

A complete discussion of the brine drum dryers is presented in Attachment 14.

13.1.5 Collection Units

There are several categories of sumps at USACAMDS. The sumps that are hazardous waste collection units and provide secondary containment for other hazardous waste management units are shown in Table 13-2. Waste liquids in the sumps are collected and transferred to permitted storage tanks within 24 hours.

13.1.6 Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls

The following paragraphs discuss feed systems, safety cutoff, bypass systems, and pressure control for the agent tank systems. (See Table 13-1 for specific levels, alarm settings, and volumes.) At a minimum, each tank and sump will be equipped with a level-sensing device that will alarm at a level of one inch of moisture (for sumps with liquid sensors) or at high and high-high conditions (for tanks and sumps with level indicators). At the indication of a high-level alarm, operator attention is required. The operator must assess the situation and perform appropriate manual operations to remedy the high level situation. These alarm devices will provide overfill protection for sumps and tanks. The following paragraphs give a more detailed look at the current control scheme.

13.1.6.1 Agent Collection and Transfer System

Agent is generated at three process points where munitions or bulk items are penetrated and drained by pump suction. Agent drained from rockets and mines in ECC No. 1 is pumped to one of two agent tanks (SEG-T1 and SEG-T2) in a shrouded and ventilated area outside of the south end of ECC No. 1. From these tanks, agent can be pumped directly to the Toxic UPA to be loaded into ton containers (TCs) and returned to the depot igloo storage. Agent drained from bulk items in the BIF and agent drained from munitions at the MDM are pumped into the MDM agent collection tanks (MDF-T3 and

MDF-T4). Agent collected in these tanks may be pumped to the BIF to be loaded into TCs to be incinerated in the MPF or returned to the depot igloo storage.

The two agent storage tanks at the ECC (SEG-T1 and SEG-T2) have ultrasonic level indicators that cause an alarm to sound in the Control Module (CM) when a predesignated high level is reached. The alarm is interlocked to the munitions processing operations and all munitions processing is stopped when the alarm indicates. The level indicator provides an inventory of agent in the tank.

The two agent storage tanks at the MDM Area (MDF-T3 and MDF-T4) are equipped with ultrasonic level controls and indicators. When the tank levels reach a predesignated high level, the feed pump is shut down. A check valve is installed in each of the agent tank vent lines to prevent liquid discharge, in the event of an accidental overfill.

The two agent storage tanks (ASR-T6 and ASR-T7) in the ASR near the LIC are equipped with ultrasonic level indicators that cause an alarm to sound in the CM when a predesignated high level is reached. The alarm is interlocked to stop agent transfer.

The ECC (SEG-T1 and SEG-T2) and MDM (MDF-T3 and MDF-T4) agent tanks are at atmospheric pressure and pressure is not measured. All four tanks are vented to the ventilation system to prevent pressure buildup. Temperature of the agent is ambient and is not measured. Specific gravity is not measured, nor are flows.

The agent tanks located adjacent to the LIC (ASR-T6 and ASR-T7) are an integral part of the LIC process equipment. Agent will be pumped from the two agent feed tanks to supply the LIC. Flow of agent to the LIC is measured and recorded by a flow transmitter. Nitrogen can be used to transfer agent to the incinerator if the pumps should fail by purging the transfer lines at 60 psi.

13.1.6.2 Waste Liquid Tank System

Waste liquids are separated into two categories. PAS brines are sent directly to the BDA for drying. Other waste liquids (including spent decontamination solution) that are generated by decontamination procedures rather than from incineration processes, are sent to the TMF waste liquid storage tanks and held until certified as being below the drinking water standard. To determine this, the waste liquid is sampled according to the Waste Analysis Plan. After certification, they are held in the TMF prior to being processed through the LIC or shipped to an approved TSDF.

The two waste liquid storage tanks in the TMF (TMF-1 and TMF-2) are equipped with sight glasses and contact probe level sensors with indicators. The signal is transmitted to the CM.

All waste liquid storage tanks are at atmospheric pressure, and pressure is not measured. All of the tanks are vented to prevent pressure buildup. Temperature of liquids is ambient and is not measured. Flows to the tanks are not measured. Specific gravity is not measured.

The levels in the five storage tanks (T13-A, T13-B, T13-C, T13-D, and T13-E) for PAS brines to be dried at the BDA are monitored by level sensing alarms and the operators in the area through sight glasses.

13.1.6.3 Diagram of Piping, Instrumentation, and Process Flow for Each Tank System

The details of piping, valving, instrumentation, and process flow of the agent tanks, TMF tanks, and the BDA tanks are shown in the drawings listed in Table 13-1.

13.1.6.4 Containment and Detection of Releases

There are 14 separate tank system areas that have been provided with secondary containment and leak detection. These areas, and their approximate secondary containment capacities, are:

AREA	**CAPACITY (gallons)**
• Agent Storage Room - LIC	2,158
• Brine Drying Area	18,000
• Bulk Item Facility	1,459
• Incinerator Areas	- - - - - - - - -
• Deactivation Furnace (DFS)	1,700
• Liquid Incinerator (LIC)	1,781
• Metal Parts Furnace (MPF)	7,730
• Explosive Containment Cubicle/Segregation Area	14,335
• Equipment Test Facility	2,418
• Material Treatment Facility (MTF)	865
• Multipurpose Demilitarization Facility	5,137
• Residual Storage Area	286
• Chemical Distribution System Area	1,658
• Ventilated Storage Area	4,449
• Toxic Maintenance Facility	2,783
• CAMDS Lab	1,000
• Site Medical Facility (collection point)	260

Sumps in these areas will not be used to store hazardous waste, and no operating record will be kept on the amount of waste collected in them; however, they will be pumped every 24 hours according to condition IV.G.1. They are used as collection points for transferring the liquid to permitted storage tanks. The following paragraphs address secondary containment and leak detection for these areas. See Table 13-2 for complete information.

13.1.6.4.1 Agent Storage Room - LIC

The ASR is located adjacent to the LIC facility, which is adjacent to the MPF Building. Two of the seven agent storage tanks are located here (ASR-T6 and ASR-T7). These are the two agent storage tanks that serve as feed tanks to the LIC. T6 has a capacity of 300 gallons and tank T7 has a capacity of 500 gallons.

There is one sump in the ASR, Sump 8C. The sump is 6-feet by 6-feet and 5-feet deep. This sump and the curbed floor of the room provide secondary containment for the two agent storage tanks (ASR-T6 and ASR-T7) in the Agent Tank Storage Room. The sump and curbed floor are large enough (2,158 gallons) to contain 100 percent of the capacity of the largest agent storage tank in the building, and can actually contain the contents of both agent storage tanks in the room. (The sump volume alone represents 269 percent of the capacity of the largest tank in the area.) The ASR is located inside a building, and there is no run on or infiltration expected. The ASR has chemical-resistant water stops at all joints and is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

The ventilation system is designed to act as a key element in the confinement of agent by operating and maintaining the ASR at a negative pressure. The interior faces of the exterior walls are sealed to protect the external environment. The same sealing procedure is applied to ventilation ducting and instrumentation lines that penetrate the walls. Agent monitors will detect any agent leaks. The materials provided to seal the surfaces and joints of the floors, walls, ceiling, and wall penetrations are Epoloid Mastic 5-E-84.

13.1.6.4.2 Brine Drying Area

There are three double-walled sumps (2A, 2C, and 2D) that provide secondary containment for waste liquids in the BDA and are constructed of carbon steel and coated with Epoloid G or equivalent. The primary containment sumps are equipped with level indicators and alarms for high and high-high levels to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sumps.

Secondary containment for the hazardous waste storage tanks in the BDA is provided by the design of the floor and curbing, which provide 18,000 gallons of capacity. A 6-inch curb is constructed to surround the area.

The BDA is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable. Spent decontamination solution, which has been certified below the drinking water standard and PAS brines can be stored in the BDA.

13.1.6.4.3 Bulk Item Facility

There is a single-walled concrete 359-gallon sump (3B) that, together with the curbed floor, provides secondary containment for waste liquids in the BIF. The concrete is sealed with Epoloid E mastic, and there are chemical-resistant water stops in place at any control, construction, or expansion jointThe sump is equipped with a level indicator and alarms for high and high-high levels to provide overfill protection.

The BIF is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.4 Deactivation Furnace System Area

There is a double-walled sump (5A) that provides secondary containment for waste liquids in the DFS area. The containment sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sump.

Sump 5D is a collection point in an upset condition that drains to sump 5A.

Secondary containment for the DFS PAS brine tanks is provided by the design of the floor and curbing and Sump 5A.

The DFS area is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.5 Liquid Incinerator Area

There is one double-walled sump (8A) that provides secondary containment for waste liquids in the LIC Primary Chamber area, including the 300-gallon agent tank, LIC-T5. The sump is constructed of fiberglass-reinforced plastic and Halar. The primary containment sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sump.

There is one sump (8B) that is provided for emergency or upset conditions in the LIC Secondary Chamber area. The sump is constructed of concrete and provided with a mastic coating. The sump is normally empty and is inspected on a daily basis. Any accumulation of liquid in the sump is an indication of an emergency or upset condition. The LIC area is located inside a building, and there is no run on or infiltration expected.

13.1.6.4.6 Metal Parts Furnace Area

There are two sumps (10B and 10C) in the MPF area that are constructed of a double-wall steel liner coated with mastic. Sump 10B collects waste liquids. Sump 10C is located under the PAS scrubber tower and collects washdown water. These two sumps and the curbed area they are in provide secondary containment of 3,040 gallons for the MPF scrubber tower and the PAS brine retention tanks.

There is a concrete sump (19A) located in the MPF/BDS Preparation Area. This sump and the curbed area it is in provide 4,690 gallons of secondary containment for this area. (See Attachment 12.)

The MPF area is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.7 Material Treatment Facility

There is one double-walled sump (14C) that provides secondary containment for waste liquids in the Material Treatment Facility (MTF) east curbed storage area. This sump and curbed area provide approximately 675 gallons of secondary containment when the area has no storage pallets with containers (see Attachment 12). It is constructed of carbon steel and coated with Epoloid G. The primary containment sump is equipped with level indicators and alarms for high and high-high level to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sumps.

There are two sumps (14A and 14B) in the MTF process area that collect waste liquids resulting from daily washdowns. The sumps are constructed of concrete and are provided with a mastic coating. They are inspected daily. The total capacity of the secondary containment provided by the sumps and the sloped floor is approximately 190 gallons when the area has no items held on the base (see Attachment 12).

The MTF area is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.8 Explosive Containment Cubicle/Segregation Area

Secondary containment for the two agent tanks, SEG-T1 and SEG-T2, is provided by a 6-inch curbed floor vault which is 180 inches wide and 228 inches long, allowing 1,066 gallons of containment. There is one single-walled sump 6A that provides secondary containment for waste liquids in the ECC/SEG Area pit. The sump is constructed of concrete coated with Epoloid E. When the sump needs to be recoated, this material or an equivalent will be used. The sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection.

There is also one 300-gallon aboveground sump tank (6B) located in the pit area that provides containment. It is made of polyethylene. There is a concrete vault that provides containment for this tank. The concrete is coated with mastic and there are chemical-resistant water stops in place at any control, construction, or expansion joints. This sump is inspected daily.

The secondary containment capacity provided by the pit area (12,917 gallons) and the two sumps, 6A (52 gallons) and 6B (300 gallons), is approximately 13,269 gallons.

This area is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.9 Equipment Test Facility

The ETF building is located at the south end of the USACAMDS site. The ETF storage area includes the UPA at the north end of the building and the Repack area with ventilated

area at the south end of the building. The ETF will store hazardous waste containing free liquid. The ETF also houses explosives, containerized solid hazardous waste, and waste piles.

The design of the ventilated area of the ETF provides secondary containment for liquids. The ventilated area has a curbed, sloped base with a trench that connects to a waste liquid pipeline. Liquid would flow through this piping to a sump (7A) located in the pit under the ECC No. 2.

The concrete floor is coated with an epoxy mastic to prevent waste migration into the concrete. The coating is a two-part polyamide cured, high-resin solids epoxy (Rowe Epoloid for concrete and steel or equivalent). The sump has an ethylene-chlorotrifluorethylene liner (ECTFE or Halar). The ETF building consists of a concrete base with a steel frame, metal skinned structure. The ventilated storage location is a curbed area within the ETF building, thus the base does not receive precipitation.

The base was designed with sloped, trenched floors to sump 7A.

The area in the ventilated portion of the ETF available for storage of containers is approximately 800 square feet. Secondary containment provided by the in-floor collection sump 7A (96 gallons) and concrete vault below ECC No. 2 provides a total containment volume of approximately 2,200 gallons. This figure is based on an eight-inch liquid depth in the concrete vault, which is the structural load limit for liquid above the collection sump.

Sump (7A) is constructed of fiberglass-reinforced plastic and Halar. When the sump needs to be recoated, this material or an equivalent will be used. The primary containment sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sumps.

A concrete sump (7C) with metal liner is included in the hydraulic equipment room of the ETF. This sump is used to collect hydraulic fluid leaks.

13.1.6.4.10 Multipurpose Demilitarization Facility

In the MDF/BIF Loading Area, there is a collection sump (9A) and a trench (9B), which runs along the length of the overhead door and drains into sump 9A. Secondary containment of 61 gallons in this area is provided by these two sumps only, because the area has no curbed floor around the entire perimeter.

There is one sump (9C) in the MDF hydraulic room. The sump is constructed of steel lined with Halar. It provides 46 gallons of secondary containment. It flows into 9E.

There is one double-walled sump (9E) that, together with the curbed floor, provides secondary containment for waste liquids in the Multipurpose Demilitarization Machine Processing Area/Conveyor Gallery (MDM/CG). The total containment provided is 2,512 gallons (see Table 13-2). This is more than enough to contain the total capacity of the two agent tanks in this area, MDF-T3 and MDF-T4. The 6-inch curb and surrounding floor

have been resealed and existing cracks and gaps have been repaired. The secondary containment of the sump is constructed of fiberglass-reinforced plastic. The primary containment is constructed of fiberglass-reinforced plastic coated with Halar. When the sump needs to be recoated, this material or an equivalent will be used. The primary containment sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sump.

There is one sump (9F) located in the MPF Charge Car Area. Secondary containment is provided by a concrete curb around the sump. The total secondary containment in this room provided by the sump 9F and the curbed floor is 680 gallons. This sump has leak and level sensors.

There is one sump (9G) located in the MDF/BIF Airlock. Secondary containment of 1,059 gallons for this area is provided by a six-inch curbed floor and the sump. Detection is provided by a liquid sensing device.

There is one sump (9H) in the MDF Toxic Unpack Area (UPA). Secondary containment of 778 gallons for this area is provided by a six-inch curbed floor and the sump. Leak detection is provided by a liquid sensing device.

The concrete floors in the MDF are coated with mastic and have chemical-resistant water stops in place at any control, construction, or expansion joints.

The MDF is located inside a building, and there is no run on or infiltration expected. The area is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.11 Residual Storage Area

There is one double-walled sump (11A) that provides secondary containment (286 gallons) for waste liquids in the RSA. The secondary containment is constructed of fiberglass-reinforced plastic. The primary containment is constructed of fiberglass-reinforced plastic coated with Halar. The primary containment sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sump.

13.1.6.4.12 Ventilated Storage Area

The building is divided into a containment area; an airlock; and doffing, shower, and observation/monitoring areas. Approximately 1231 square feet of area are available for hazardous waste storage in the containment area. Secondary containment for the storage area is provided by the curbed base of the containment area section of the VSA and an in-the-floor sump, Sump22A. The sump has a capacity of 93.5 gallons and the total secondary containment capacity provided by the sump and curbed floor is 4,449 gallons, assuming a container and waste pile storage configuration as described in Attachment 12.

The base of the VSA containment area consists of a sealed concrete floor and curbing around the perimeter. The curbing is at least 6 in. in height above the floor level and the base is completely enclosed with walls and ceiling. A floor sump having a cross section of 2 ft. by 2 ft. and a depth of 3 1/8 ft. is located north of the center of the floor. The sump is constructed of reinforced concrete coated with mastic. The sump has electronic moisture detection.

13.1.6.4.13 Chemical Distribution System (CDS) Area

There is one sump (4A) located in the CDS area, which is next to the RSA. The sump and the curbed floor provide secondary containment (1,658 gallons) for the two 600 gallon decontamination solution tanks used to store sodium hydroxide and sodium hypochlorite. The sump is constructed of concrete coated with Epoloid mastic coating. It has a continuous electronic moisture sensor.

13.1.6.4.14 Toxic Maintenance Facility

There is one double-walled sump (15A) that provides secondary containment for waste liquids in the TMF. The sump is constructed of carbon steel with the primary and secondary containment walls coated with Halar and Epoloid G, respectively. When the sump needs to be recoated, this material or an equivalent will be used. The sump is equipped with level indicators and alarms for high and high-high levels to provide overfill protection. Leak detection is provided by a liquid-sensing device located in the interstitial area between the double walls of the sump.

Secondary containment for the two waste liquid storage tanks (TMF-1 and TMF-2) is provided by the design of the floor and curbing. Together with the sump, it provides 2,783 gallons of secondary containment. A curb surrounds the area and the floor has been resealed and made free from cracks and gaps.

The TMF is located inside a building, and there is no run on or infiltration expected. The Toxic Maintenance Facility is located above ground, inside a building and is not subject to hydraulic pressure, so the requirement for an exterior moisture barrier to prevent migration of moisture into a vault is not applicable.

13.1.6.4.15 CAMDS Lab/Site Medical Facility

A collection sump (12A) is provided to collect shower water from the CAMDS Lab. A collection sump (13A) is also provided to collect shower water from the Site Medical Facility (SMF). Sump 13A has a capacity of 260 gallons. Sump 12A has a capacity of 1,000 gallons.

13.1.7 Plans and Description of the Design, Construction, and Operation of the Secondary Containment System

Secondary containment systems are designed, installed, and operated to prevent any migration of wastes out of the system at any time and are capable of detecting and collecting releases and accumulated liquids until the collected material is removed. Secondary containment systems have been constructed of compatible materials, placed on

an acceptable foundation or base, provided with a leak-detection system, and sloped or otherwise designed to remove spills or leaked wastes.

Specific information on the design and construction of existing secondary containment systems for the tank systems is given in Tables 13-1, 13-2. This includes process flow diagrams, structural drawings of the tank systems, piping and instrumentation diagrams, construction specifications, and other information on the tank systems at the installation.

13.1.7.1 Tank Age Determination

The year of installation of all storage tanks is specified in Table 13-1.

13.1.7.2 Tank System Secondary Containment Requirements

Each secondary containment system must be designed, installed, and operated to prevent migration of wastes outside of the system. The sumps that have been described previously, which are listed in Table 13-2, perform this function for the hazardous waste storage tanks at the facility. In the event of a spill or leak, the waste material will be collected in the secondary containment system. From there it will be pumped to one of the waste liquid storage tanks and, depending on the waste material, incinerated in the LIC, dried in the brine dryers (PAS brines only), or shipped to an approved TSDF.

The secondary containment system is lined with compatible materials and has the strength and thickness to prevent failure from physical contact with the waste, climatic conditions, and the daily stresses of operation. The sumps that were previously described meet these criteria. The sumps, floors, walls, and other components are covered with an impermeable epoxy coating. All components are free from cracks or gaps.

The various hazardous waste secondary containment sumps are constructed of reinforced concrete and/or carbon steel and are designed for maximum inside head pressure and outside active pressure.

The secondary containment systems are provided with a leak-detection system that detects the failure of the primary or secondary containment structure, or releases of any waste.

The floors within the curbed areas are sloped to a collection point at the rate of 1/8-inch per foot to allow for ease in draining and removing liquids. The secondary containment system sumps are sloped or otherwise designed to remove accumulated liquids. Liquids accumulated in the sumps will be pumped to the waste liquid storage tanks.

13.1.7.3 Secondary Containment System Leak Detection Requirements

The principles of the leak detection system are similar for all tank systems. There is an agent monitoring system installed throughout the facility. This system continuously monitors the ambient air for the presence of agent, and is an indicator of agent releases.

All sumps associated with the hazardous waste storage tank systems are inspected daily. All hazardous waste containment sumps are equipped with process control instrumentation.

13.1.7.4 Ancillary Equipment Secondary Containment Requirements

Secondary containment will be provided for all ancillary equipment, with only a few exceptions, such as devices that are inspected for leaks on a daily basis. These devices include aboveground piping (exclusive of flanges, joints, valves, and other connections); welded flanges, joints, and connections; seamless or magnetically coupled pumps; and pressurized aboveground piping systems with automatic shutoff devices.

The ancillary equipment associated with the hazardous waste storage tank systems at the installation has the necessary secondary containment.

Secondary containment for ancillary equipment in the Agent Storage Room and the Toxic Maintenance Facility relies on the presence of sumps. All ancillary equipment is provided with secondary containment in the same manner as the tank systems. The series of sumps provides secondary containment for the ancillary equipment in the same manner as for the tanks themselves.

Agent piping that is routed outside of secondary containment areas is double-walled. The inner pipe transports liquid agent. The outer pipe acts as an annulus to provide secondary containment, and to also provide a monitoring area for detection of agent, by pulling negative pressure with a pump through the interstitial area between the pipes. Agent detector lines are inserted in the annular space continuously to detect for agent. Should the annulus pump stop, a differential-pressure alarm will trip and will alert workers. This type of agent piping system runs between the LIC, the MDF, and the ECC.

13.1.7.5 Ancillary Equipment Leak Detection Requirements

Leak detection will be provided for all ancillary equipment. The ancillary equipment associated with the hazardous waste storage tank systems at the installation has the necessary leak detection equipment.

Leak detection for ancillary equipment in the ASR and TMF relies on the agent monitoring system, the level indicator alarm, and sump pump in each sump at the facility. The one exception to this leak detection system is the brine transfer line. This line, which brings brine from the PAS to the BDA, is constructed of welded pipe and is inspected for leaks at least once each operating day.

13.1.8 Control and Practices to Prevent Spills and Overflows

At a minimum, each tank and sump has been equipped with a level-sensing device that will indicate at high level and sound an alarm at high-high level conditions. At the sound of a high-high level alarm, operator attention is required. The operator must assess the situation and perform appropriate manual operations to remedy the high-high level situation. These alarm devices will provide overfill protection for sumps and tanks.

During filling of the two agent storage tanks in the ECC or the two agent tanks in the MDM, there is a level interlock that will shut down the processing of munitions or the feed pump when the tank levels reach a “high” alarm level. The agent storage tanks at the

LIC and at the MDM have check valves in the vent line to prevent liquid discharge in the event of an accidental overfill.

The two waste liquid storage tanks located at the TMF and the five tanks in the BDA area are equipped with sight glasses and level indicators with alarms. During filling operations, the sight glasses will be visually monitored by the operators.

The PAS brine feed rates to the brine drum dryers and evaporator system are manually controlled and adjusted. There are no system interlocks with other site operations.

13.1.9 Tank System Management Practices

13.1.9.1 Management of Ignitable or Reactive Wastes in Tanks

Agent, brine, and spent decontamination solutions have flash points that classify them as Class IIIB liquids in accordance with the National Fire Protection Association (NFPA). They are not unstable or reactive liquids, as defined by the NFPA. The storage tanks are in full compliance with these requirements. The agent tanks, DFS and MPF brine tanks, and waste liquid storage tanks in the TMF, are located in containment areas that have raised curbs and sumps affording containment in excess of the largest tank capacity, or 10 percent of the total liquid stored. The tanks in the BDA are curbed.

13.1.9.2 Management of Incompatible Wastes in Tanks

The design of the facility only allows for brines from the PAS to go to the brine storage tanks in the BDA, waste liquids from the sumps to go to the TMF waste liquid tanks, and agent from the demilitarization machines to go to the agent collection tanks.

13.1.9.3 General Operating Requirements

Waste material will not be placed in a tank that will cause it to rupture, leak, corrode, or otherwise fail. Because the tanks are not pressurized and are vented to the atmosphere, material placed within them will not cause the tanks to rupture. The ventilation filtering system contains any vapors that are released. Liquid releases are contained in the sump and drainage systems.

Spills will be collected in an appropriate sump and pumped to the proper tank. The floors in the area are sloped to drain spill runoff into the sumps. Agent spills will be treated immediately with decontamination solution. Cleanup includes collecting the spilled material and, if necessary, rinsing the area again with large amounts of decontamination solution to minimize agent contamination. If there was a release of spent decontamination solution, more decontamination solution would be used for rinsing to ensure that the agent contamination be minimized. All sumps and equipment in the area of the release would then be rinsed with large amounts of process water. All the rinses, both waste liquid storage and process water, are pumped to the waste liquid storage tanks before disposal in the LIC or transferred to an approved TSDF.

Specific procedures for an agent spill or other leak of any waste in a non-toxic area of USACAMDS are:

- Stop all agent processing and shut down munitions feed, conveyors, and LIC, if affected

- Verify that plant agent monitors are operational and verify that spill vapor is contained

- Assess onsite spill and implement cleanup plan

- Isolate leaking agent tank or piping and transfer contents to LIC, other appropriate storage tanks or containers

- For large spills (greater than 5 gallons), flood area with decontamination solution, pump the contaminated decontamination solution to the TMF waste liquid storage tanks, and have Emergency Response Team dressed in Demilitarization Protective Ensembles (DPE) or Level A protective clothing perform decontamination procedures

- Have maintenance staff repair leak

- For small spills, have the Emergency Response Team perform decontamination procedures and the maintenance staff make repairs

- Manage properly any sorbent materials used in decontamination procedures, as required

- Specific procedures for spills, leaked wastes, and precipitation in other specific areas are:

- Collect spills or leaks that occur in the PAS areas and transfer to the BDA brine holding tanks (scrubber brines or spent decon) or TMF tanks (spent decontamination solutions only); make sure that PAS brines and spent decontamination solutions will never be mixed in the same tanks

- Spills or leaks at the BDA will be pumped to the BDA or TMF tanks

- If applicable, have Emergency Response Teams and maintenance personnel in appropriate protective level clothing perform decontamination procedures and repair leaks

- Manage properly sorbent materials used in decontamination procedures

Any tank system or secondary containment system from which there is a spill or leak will be removed from service immediately. All material flows into the tank will be stopped. The system will be inspected to determine the cause of the release. If the release is from a tank system, sufficient waste will be removed from the tank system to prevent any further release. If the release is to a secondary containment system, all released materials will be removed immediately.

In the event of a release to the environment outside of the secondary containment system, a visual inspection will be conducted and appropriate actions will be taken to prevent

further migration of the leak or spill to soils or surface water, and to remove and properly dispose of any visible contamination of the soil or surface water. A reportable quantity release to the environment will be reported to the Executive Secretary of the Utah Solid and Hazardous Waste Control Board within 24 hours of its detection. A detailed written report with the required information on the migration route of the release, characteristics of the surrounding soil, results of any monitoring or sampling conducted in connection with the release, proximity to down-gradient waters and population areas, and response actions both taken and planned will be submitted to the Executive Secretary of the Utah Solid and Hazardous Waste Control Board within 30 days.

If the cause of the release was a spill that has not damaged the integrity of the system, the system will be returned to service as soon as the released waste is removed and the necessary repairs are made. If the source of the release was a leak from the primary tank system into the secondary containment system, the primary tank system will be repaired prior to returning the entire system to service. If the source of the release was a leak to the environment from a component of the tank system without secondary containment, the component will be provided with secondary containment before the system is returned to service, unless the component is an aboveground portion of the tank system that is inspected on a daily basis for leaks. In this case, the component will be returned to service with the proper certification of major repairs. As defined in 40 CFR § 264.196(f), this certification is required for any major repair of a tank system and must be performed by an independent, qualified, registered professional engineer. A major repair is defined in § 264 to be a repair that is extensive "(e.g., installation of an internal liner; repair of a ruptured primary containment or secondary containment vessel)." In other words, a major repair is one that requires a certification because the integrity of the system has been damaged. The engineer must certify that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. The certification is to be submitted to the Executive Secretary of the Utah Solid and Hazardous Waste Control Board before returning the tank system to use.

After the closure of the tank systems, all waste residues, contaminated containment system components, soils, structures, and equipment will be decontaminated and removed. These items will be managed as hazardous wastes.

Table 13-1
TANKS
PERMITTED STORAGE/TREATMENT TANKS

Tank No.	Tank Name / Description	Location	Application/Purpose	Typical Wastes	Max. Capacity (Nominal) (gal.)	Max. Working Capacity		Alarm Levels				Type of Level Indicator
								High		High-High		
						Gallons	Inches	Gallons	Inches	Gallons	Inches	
AGENT TANKS:												
SEG-T1	Rocket Line System, Tank 1	ECC / Segregat-or	Collects agent from draining mines and rockets	Agent	300	250	90.0	240	86.0	250	90.0	Ultrasonic
SEG-T2	Rocket Line System, Tank 2			Agent	300	250	90.0	240	86.0	250	90.0	Ultrasonic
MDF-T3	Multipurpose Demilitarization Facility, Tank 3	MDF	Used to collect agent drained from projectiles disassembled in the MDM and agent drained from bulk items in the Bulk Item Facility (BIF)	Agent	300	250	89.6	240	86.0	250	89.6	Ultrasonic
MDF-T4[2]	Multipurpose Demilitarization Facility, Tank 4			Agent	300	250	89.6	240	86.0	250	89.6	Ultrasonic
LIC-T5[2]	Inventory in Liquid Incinerator Room, Tank 5	LIC Primary Chamber	Agent from the other agent storage tanks (Nos. 1 through 4), is pumped to these tanks before and during operation of the LIC. Serve as supply tanks to the LIC.	Agent	300	250	89.4	240	85.9	250	89.4	Ultrasonic
ASR-T6	Agent Storage Room, Tank 6	LIC Agent Tank Room (see dwg. TCDS 17-630-01)		Agent	300	250	89.4	240	85.9	250	89.4	Ultrasonic
ASR-T7	Agent Storage Room, Tank 7			Agent	500	450	50.0	400	44.7	450	50.0	Ultrasonic
BRINE DRYING AREA BRINE HOLDING TANKS AND EQUIPMENT:												
T13-A	Brine Drying Area Tank A	BDA	Waste liquids from the process areas and the PAS are pumped to the BDA and are held here until they can be processed by the twin drum dryer system	Spent decon, PAS brines	5,000	4,500	120	4,000	107½	4,500	120	Sight glass
T13-B	Brine Drying Area Tank B				5,000	4,500	120	4,000	107½	4,500	120	Sight glass
T13-C	Brine Drying Area Tank C				5,000	4,500	120	4,000	107½	4,500	120	Sight glass
T13-D	Brine Drying Area Tank D			Spent decon, PAS brines	15,000	13,500	175¼	12,000	157	13,500	175¼	Sight glass
T13-E	Brine Drying Area Tank E				15,000	13,500	175¼	12,000	157	13,500	175¼	Sight glass
TOXIC MAINTENANCE FACILITY WASTE LIQUID STORAGE TANKS:												
TMF-1	Toxic Maintenance Facility Tank 1	TMF	Waste liquids from the process areas and the PAS are sent to the TMF where they are pumped to the incinerators, the BDA, or sent to an approved commercial facility for disposal	Spent decon	1,600	1,440	79	1,280	73	1,440	79	Sight glass
TMF-2	Toxic Maintenance Facility Tank 2	TMF			1,600	1,440	79	1,280	73	1,440	79	Sight glass

Table 13-1 (Continued)
TANKS
PERMITTED STORAGE/TREATMENT TANKS

Tank No.	Physical Description	Diameter x Height	Year Installed	Materials of Construction/ Design and Test Parameters		Design Standards & Specifications[1]	General Assembly Drawing[1]
AGENT TANKS:							
SEG-T1	Welded, vertical, cylindrical above ground. The cylindrical shell is made with steel plate. The bottoms of these tanks are convex; the top is a flanged and bolted flat plate. Have dished and flanged head bottom with flanged pipe openings in the tank top and tank bottom. Four angle iron legs elevate the bottom of the tank approximately 18 inches above the finished floor level. The minimum shell thickness of any portion of the tank's inner surface, which is in direct contact with the agent, is ½-inch thick. The manufacturer incorporated a ¼-inch corrosion allowance into the tank design. Bottom center opening is reserved as the agent drain outlet to ensure complete emptying. Unlined and the exterior surface is painted. Welding was done by certified welders.	2½' x 7' 10½"	1984	Cylindrical sidewall (shell)	SA-285-C steel plate	ANSI Chap. B16.42, B18.21, B182.2 ASME Public., Boiler and Pressure Code and Interpretations, Sections II, III, VIII, IX <u>T1 thru T6</u> **CAMDS Specification 19-01** Specification for Steel Chemical Agent Collection Tank <u>T7</u> **CAMDS Specification 19-03** Specification for Steel Chemical Agent Collection Tank #2 <u>T5 thru T7</u> **CAMDS Specification 70-04** Specification for Construction of Agent Tank Room Addition to the Liquid Incinerator (LIC)	TCDS 17-310-04 Sheet 1 of 1
SEG-T2		2½' x 7' 10½"		Heads	SA-516-70		TCDS 17-320-03, Sheet 1 of 2
MDF-T3		2½' x 7' 10½"		Flanges			TCDS 17-330-02, Sheet 1 of 2
MDF-T4[2]		2½' x 7' 10½"		150# W.M.	SA-105		TCDS 17-330-02, Sheet 1 of 2
LIC-T5[2]		2½' x 7' 10½"		Cover	SA-516-70		TCDS 17-330-03, Sheet 1 of 1
ASR-T6		2½' x 7' 10½"	1987	Pipe	SA-106-B, smls		
ASR-T7		4½' x 5'-8"	1987	Weld fitting	SA-234-WPB		
				Non-pressure parts	A-36		
				Gasket	Teflon		
				Design pressure	150 psi		
				Design temp.	-20° to 500° F		
				Test pressure	225 psi		
				X-ray of welds	Longitudinal: full Circumference: full		
				Corrosion allow.	Vessel: 1/4" Nozzle:1/16"		
				ASME Code Insp.	Yes		

Table 13-1 (Continued)
TANKS
PERMITTED STORAGE/TREATMENT TANKS

Tank No.	Physical Description	Diameter x Height	Year Installed	Materials of Construction/ Design and Test Parameters			Design Standards & Specifications[1]	General Assembly Drawing[1]
BRINE DRYING AREA BRINE HOLDING TANKS AND EQUIPMENT:								
T13-A	Welded, vertical, cylindrical above ground. The cylindrical shell is made of 3/8-inch thick steel plate. ASME code heads, used on the top and bottom, are made of ½-inch thick steel plate. Welding was done by certified welders.	9' x 9'	1975	Cylindrical sidewall (shell)	SA-285-C		ASME Section VIII, Division I	TCDS 13-301-01, Sheet 1 of 1
T13-B		9' x 9'	1975					
T13-C		9' x 9'	1975	Heads	SA-285-C			
T13-D		13' x 14'	1978	Flanges	SA-105 or SA-181		**CAMDS Specification 13-56** Construction of Improvements to the Brine Drying Area (BDA)	TCDS 13-301-09, Sheet 1 of 1
T13-E		13' x 14'	1978	Pipe	SA-53-B			
				Elbows	SA-234			
				Gaskets	1/16" compressed asbestos, garlock 7819			
				Design pressure	15 psi		**CAMDS Specification 13-45** Large Brine Hold Tanks Agent Destruct System	
				Design temp.	180 °F			
				Corrosion allow.	Heads & shell: 1/4"			
TOXIC MAINTENANCE FACILITY WASTE LIQUID STORAGE TANKS:								
TMF-1	These tanks are constructed of fiberglass-reinforced plastic. Head and shell are fabricated of 3/8-inch thick ASTM A-285-C material. Gaskets are made from compressed asbestos. These tanks are vented and do not operate as pressure vessels. Welding was done by certified welders. The tanks have dished heads and cone bottoms. Sodium hydroxide, sodium hypochlorite (less than 9%), and sodium salts will not attack nor permeate the tanks up to 150° F.	7' 8" dia. 37" high side wall 8½" high head 47" cone bottom	1988	**PROPERTY**	**ASTM TEST**	**PROPERTIES**	ASME Section VIII, Division I (Metal Parts)	TCDS 51-302-02, Sheet 1 of 1
				Density, g/ml	D1505-68	0.930 ± 0.033		
TMF-2		7' 8" dia. 37" high side wall 8½" high head 47" cone bottom	1988	Tensile Strength, Ultimate, psi 2□/min	0638-72	2,600	ASME Section X (Fiber-Reinforced Plastic Components)	
				Vicat Softening Point, Deg. F	D1525-70	~240		
				Brittleness Temperature	D746-73	< -180		

Notes:
[1] Tank drawings are contained in Attachment 11
[2] Not in use

Table 13-2
COLLECTION SUMPS

Sump No.	Sump Location	Sump Purpose	Typical Wastes	Destination of Wastes	Max Capacity (Nominal) (gal.)	Max Working Capacity (gal.)	Alarm Levels			Sump & Curbed Floor Secondary Containment (gal.)
							Low (in.)	High (gal.)	High-High (gal.)	
2A	**Brine Drying Area** In floor (east side)	Sumps and curbed floor provide secondary containment for the BDA	PAS brine washdown	BDA storage tanks	312	281	None	250	281	18,000
2C	**Brine Drying Area** At dryers		PAS brine washdown	Sump 2A	19	17	None	15	17	
2D	**Brine Drying Area** At evaporator		PAS brine washdown	Tank T13-E	19	17	None	15	17	
3B	**Bulk Item Facility** In floor (east side)	Wash down from BIF process	Spent decon, washdown, shower water	TMF	359	323	None	287	323	1,459
4A	**Chemical Distribution System Area** (next to RSA) Below two decontamination solution tanks	Sump and curbed floor in room provide secondary containment for the two decontamination tanks	Water, decon	TMF	30	26	None	23	26	1,658
5A	**Deactivation Furnace System Area** At west end of retention tanks	Secondary Containment/ washdown PAS	PAS brine	BDA	629	566	None	503	566	1,700
6A	**ECC #1/ Segregation Area** In pit floor (NE corner)	Secondary Containment	Spent decon, washdown	Sump 6B	52	47	None	42	47	13,269 gallons (ECC pit and sumps 6A & 6B)
6B	**ECC #1/ Segregation Area** On pit floor (NW corner)	Secondary Containment	Washdown, spent decon, shower water	TMF	300	270	None	240	270	1,066 gallons curbed floor vault for agent tanks, SEG-T1 and SEG-T2
7A	**Equipment Test Facility** In pit floor (NE corner)	Secondary containment	Spent decon, washdown	TMF	96	86	None	77	86	2,200
7C	**ETF Hydraulic Room**	Secondary containment; used to collect hydraulic fluid leaks	Hydraulic fluid	Portable Container	218	196	None	175	196	
8A	**Liquid Incinerator Area** In floor tank (Primary Chamber)	Secondary containment for LIC primary chamber	Spent decon, washdown, shower water	TMF	96	86	None	77	86	1,125 (Est.)
8B	**Liquid Incinerator Area** At bottom of afterburner (Secondary Chamber)	Sump collects slag from LIC afterburner upset conditions	Spent decon, LIC salt slurry	Salt removal system sump 8D	656	591	1	No Alarm	No Alarm	

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Sump Location	Sump Purpose	Typical Wastes	Destination of Wastes	Max Capacity (Nominal) (gal.)	Max Working Capacity (gal.)	Alarm Levels			Sump & Curbed Floor Secondary Containment (gal.)
							Low (in.)	High (gal.)	High-High (gal.)	
8C	**Agent Storage Room** Tank in vault	Sump and curbed floor provide secondary containment for the ASR	Spent decon, washdown	TMF	1,346	1,212	1	No Alarm	No Alarm	2,158
9A	**Multipurpose Demilitarization Facility** In floor sump (MDF/BIF Loading Area)	Secondary Containment	Spent decon, washdown	Pumped to a portable tank or sump 3B for transfer to TMF	29	26		No Alarm	No Alarm	
9B	**Multipurpose Demilitarization Facility** In floor trench (Loading Area)	Secondary Containment	Spent decon, washdown	Sump 9A	32	29		No Alarm	No Alarm	
9C	**Multipurpose Demilitarization Facility** In floor tank (Hyd. Room)	Secondary Containment	Spent decon, washdown	Sump 9E	46	41	1	37	41	
9E	**Multipurpose Demilitarization Facility** In floor tank (MDM/CG)	Sump and curbed floor vault provide secondary containment	Spent decon, washdown, shower water	TMF	208	187	None	166	187	2,304 gal. (c. floor) (336" x 264" x 6" deep) + 208 gal. (sump) 2,512 gal.
9F	**Multipurpose Demilitarization Facility** Tank in vault (Charge Car area)	Secondary Containment	Spent decon, washdown, shower water	Sump 9E	3	3	1	2	3	680
9G	**Multipurpose Demilitarization Facility** Tank in floor-drain (Airlock)	Secondary Containment	Spent decon, washdown	Sump 3B; automatically pumped	0.8	0.8	1	No alarm	No alarm	1,060
9H	**Multipurpose Demilitarization Facility** Tank in floor-drain (MDF Toxic UPA)	Secondary Containment	Spent decon, washdown	Sump 3B; automatically pumped	0.8	0.8	1	No alarm	No alarm	778

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Sump Location	Sump Purpose	Typical Wastes	Destination of Wastes	Max Capacity (Nominal) (gal.)	Max Working Capacity (gal.)	Alarm Levels			Sump & Curbed Floor Secondary Containment (gal.)
							Low (in.)	High (gal.)	High-High (gal.)	
10B	**Metal Parts Furnace** PAS in floor tank	Secondary Containment	Hazardous wastes	BDA tanks	62	56	None	50	56	3,040
10C	**Metal Parts Furnace** In floor tank	Secondary Containment	PAS brine, washdown	BDA tanks	117	105	None	94	105	
11A	**Residual Storage Area** In floor tank	Secondary Containment for area	Spent decon, washdown, shower water	TMF	286	258	None	229	258	
12A	**CAMDS Lab**	Collects shower water	Shower water	Portable container to TMF	1,000	900	None	800	900	
13A	**Site Medical Facility** On ground tank	Collects shower water	Shower water, spent decon	Portable container	260	234	None	208	234	
14A	**Toxic Dunnage Incinerator Area** In floor tank	Secondary Containment	Spent decon, washdown, shower water	TMF	60	54	None	48	54	190
14B	**Toxic Dunnage Incinerator Area** In floor trench	Secondary Containment	Spent decon, washdown	Sump 14A	87	79	None	No alarm	No alarm	
14C	**Toxic Dunnage Incinerator Area** In floor tank	Secondary Contain ment	Washdown	TMF	27	24	None	21	24	675
15A	**Toxic Maintenance Facility** In floor tank	Sump and curbed floor vault provide secondary containment	Spent decon, washdown	Liquid incineration, DFS, MPF, Brine dryers	632	569	None	506	569	2,783 gal. (372" x 288" x 6" deep)
19A	**Metal Parts Furnace/ BDS Prep. Area**	Sump and curbed floor vault provide secondary containment	Snow/rain	BDA	60	54	1	No Alarm	No Alarm	4,690
22A	**Ventilated Storage Area** In floor tank	Sump and curbed floor vault provide secondary containment	Spent Decon, Washdown	Manual pump to containers/TMF	93.5	93.5	1	No Alarm	No Alarm	4,449
	Room 7040		Decontamination solutions							

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Dimensions (in.)	Insp. Freq.	Leak Detection / Overfill Protection System					Materials of Construction		Type of Cont.	General Drawings / Specs[1]	Assembly Drawings/ Specs[1]
			Level Sensor	Leak Detector	Description	Alarm Locations	Maintenance and Calibration Schedule	Inside (Primary)	Outside (Secondary)			
2A	43 sq. " x 39" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Carbon steel coated with Epoloid G	Carbon steel coated with Epoloid G	Double wall	TCDS 57-202-01, Sheets 1-3 of 3 TCDS 57-700-01, Sheet 1 of 1 TCDS 57-710-04, Sheet 1 of 1 CAMDS Specification No. 57-03 CAMDS Specification 63-02	TCDS 57-700-01, Sheet 1 of 1
2C	20 sq. " x 11" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Carbon steel coated with Epoloid G	Carbon steel coated with Epoloid G	Double wall		
2D	20 sq. " x 11" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Carbon steel coated with Epoloid G	Carbon steel coated with Epoloid G	Double wall		
3B	48” x 48” x 36” deep	Daily	Y	N	Has level sensors.	Control Module	Monthly	Concrete with Epoloid mastic coating		Single-wall		TCDS 57-602-01, Sheet 1 of 1
4A	24” x 24” x 12” deep	Daily	Y	N	Continuous electronic moisture sensor	Control Module	Monthly	Concrete with Epoloid mastic coating		No secondary containment		TCDS 57-712-01, Sheet 1 of 1
5A	55 sq. " x 48" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Fiberglass-reinforced plastic	Fiberglass-reinforced plastic	Double wall		TCDS 57-604-01, Sheet 1 of 1 TCDS 57-604-02, Sheet 1 of 1 TCDS 57-700-01, Sheet 1 of 1

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Dimensions (in.)	Insp. Freq.	Leak Detection / Overfill Protection System					Materials of Construction		Type of Cont.	General Drawings / Specs[1]	Assembly Drawings/ Specs[1]
			Level Sensor	Leak Detector	Description	Alarm Locations	Maintenance and Calibration Schedule	Inside (Primary)	Outside (Secondary)			
6A	24” x 24” X 21” Deep	Daily	Y	N	Level indicators in the primary containment	Control Module	Monthly	Carbon steel coated with Epoloid E Series mastic		Single wall	TCDS 57-202-01, Sheets 1-3 of 3	TCDS 02-610-03 Sheet 1-3 of 3
6B	Above-ground 300 gallon tank	Daily	Y	N	Visual inspection within 24 hours; level sensors only	Control Module	Monthly	Polyethylene aboveground tank		Single wall	TCDS 57-700-01, Sheet 1 of 1	No TCDS drawing; commercial item
7A	42" dia. x 16" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Fiberglass-reinforced plastic and Halar	Low carbon steel	Double wall	TCDS 57-710-04, Sheet 1 of 1 CAMDS Specification No. 57-03 CAMDS Specification 63-02	TCDS 57-709-02, Sheet 1 of 1
7C	41 sq. " x 30" deep	Daily	Y	Y	Leak and level sensors	Control Module	Monthly	Steel liner	Concrete	No secondary containment		TCDS 57-709-05, Sheet 1 of 1
8A	31 sq. " x 23" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Fiberglass-reinforced plastic and Halar	Steel with epoxy paint	Double wall		TCDS 57-703-01, Sheet 1 of 1 CAMDS Specification 57-06
8B	36" x 78" x 54" deep	Daily	N	Y	Liquid in sump sensor alarms in CM	Control Module	Monthly	Concrete with mastic coating		No secondary containment		
8C	72" x 72" x 60" deep	Daily	N	Y	Liquid in sump sensor alarms in CM	Control Module	Monthly	Concrete with mastic coating	Concrete with mastic coating	Single wall		TCDS 70-715-01, Sheet 1, 3 of 5
9A	24 sq. "x 12" deep	Daily	N	N	Visual inspection within 24 hours		Monthly	Concrete with epoxy coating		No secondary containment		
9B	397" x 12" x 8" deep	Daily	N	N	Visual inspection within 24 hours		Monthly	Concrete with epoxy coating		No secondary containment		

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Dimensions (in.)	Insp. Freq.	Leak Detection / Overfill Protection System					Materials of Construction		Type of Cont.	General Drawings / Specs[1]	Assembly Drawings/ Specs[1]
			Level Sensor	Leak Detector	Description	Alarm Locations	Maintenance and Calibration Schedule	Inside (Primary)	Outside (Secondary)			
9C	48" x 13" x 17" deep	Daily	Y	Y	Liquid sensing device; has leak and level sensors	Control Module	Monthly	Steel with epoxy paint	Halar	Double wall	TCDS 57-202-01, Sheets 1-3 of 3 TCDS 57-700-01, Sheet 1 of 1 TCDS 57-710-04, Sheet 1 of 1	TCDS 57-702-01, Sheets 1-2 of 2 TCDS 57-702-06, Sheet 1 of 1 TCDS 57-702-07, Sheet 1 of 1
9E	30" dia. x 68" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Fiberglass-reinforced plastic coated with Halar	Fiberglass-reinforced plastic	Double wall	CAMDS Specification No. 57-03 CAMDS Specification 63-02	TCDS 57-702-01, Sheets 1-2 of 2 TCDS 57-702-04, Sheet 1 of 1 TCDS 57-702-08, Sheet 1 of 1
9F	15" x 9" x 5" deep	Daily	Y	Y	Liquid sensing device; has leak detector which alarms in CM	Control Module	Monthly	Halar	Steel	Single wall;concrete vault around sump		TCDS 57-702-01, Sheets 1-2 of 2 TCDS 57-702-06, Sheet 1 of 1
9G	8" dia. x 5" deep	Daily	N	Y	Liquid sensing device; has leak detector which alarms in CM	Control Module	Monthly	Halar	Steel	Single wall;concrete vault around sump		TCDS 57-702-01, Sheets 1-2 of 2
9H	8" dia. x 5" deep	Daily	N	Y	Liquid sensing device; has leak detector which alarms in CM	Control Module	Monthly	Halar	Steel	Single wall;concrete vault around sump		TCDS 57-702-01, Sheets 1-2 of 2

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Dimensions (in.)	Insp. Freq.	Leak Detection / Overfill Protection System					Materials of Construction		Type of Cont.	General Drawings / Specs[1]	Assembly Drawings/ Specs[1]
			Level Sensor	Leak Detector	Description	Alarm Locations	Maintenance and Calibration Schedule	Inside (Primary)	Outside (Secondary)			
10B	24 sq. " x 25" deep	Daily	Y	Y	Has level and leak sensors	Control Module	Monthly	Steel coated with mastic	Steel	Double wall	TCDS 57-202-01, Sheets 1-3 of 3 TCDS 57-700-01, Sheet 1 of 1 TCDS 57-710-04, Sheet 1 of 1 CAMDS Specification No. 57-03 CAMDS Specification 63-02	TCDS 57-700-01, Sheet 1 of 1
10C	30 sq. " x 30" deep	Daily	Y	Y	Has level and leak sensors	Control Module	Monthly	Steel coated with mastic	Steel	Double wall		TCDS 57-700-03, Sheet 1 of 1
11A	36 sq. " x 51" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Fiberglass-reinforced plastic coated with Halar	Fiberglass-reinforced plastic	Double wall		TCDS 57-708-02, Sheet 1 of 1 TCDS 57-708-05, Sheet 1 of 1
12A	1,000 gallon insert tank	Daily	Y	Y	Has level and leak sensors	Control Module	Monthly	Polypropylene	Concrete	Vault		TCDS 66-700-03, Sheet 1 of 1
13A	260 gallon insert tank	Daily	Y	Y	Has level and leak sensors	Control Module	Monthly	Polypropylene	Concrete	Vault		TCDS 57-100-01, Sheet 1 of 1 TCDS 57-711-01, Sheet 1 of 1 TCDS 57-711-02, Sheets 1-2 of 2
14A	24 sq. " x 24" deep	Daily	Y	N	Has level sensors	Control Module	Monthly	Concrete with mastic	Concrete	Single wall		TCDS 57-705-05, Sheet 1 of 1 TCDS 63-701-01. Sheet 1 of 3
14B	336" x 6" x 10" deep	Daily	N	N	None		Monthly	Concrete with mastic	Concrete	Single wall		TCDS 57-705-05, Sheet 1 of 1

Table 13-2 (Continued)
COLLECTION SUMPS

Sump No.	Dimensions (in.)	Insp. Freq.	Leak Detection / Overfill Protection System					Materials of Construction		Type of Cont.	General Drawings / Specs[1]	Assembly Drawings/ Specs[1]
			Level Sensor	Leak Detector	Description	Alarm Locations	Maintenance and Calibration Schedule	Inside (Primary)	Outside (Secondary)			
14C	19 sq. " x 17" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Carbon steel coated with Epoloid G	Carbon steel coated with Epoloid G	Double wall	TCDS 57-202-01, Sheets 1-3 of 3 TCDS 57-700-01, Sheet 1 of 1	TCDS 57-700-01 Sheet 1 of 1 TCDS 57-705-05, Sheet 1 of 1
15A	52 sq. " x 54" deep	Daily	Y	Y	Electronic liquid-sensing device located in the interstitial area between the double walls; level indicators in the primary containment	Control Module	Monthly	Carbon steel coated with Halar	Carbon steel coated with Epoloid G	Double wall	 TCDS 57-710-04, Sheet 1 of 1	TCDS 51-700-06, Sheet 1 of 1
19A	24" x 24" x 24" deep	Daily	N	Y	Liquid in sump sensor alarms in CM	Control Module	Monthly	Concrete	Concrete	No secondary containment	CAMDS Specification No. 57-03	TCDS 16-720-01, Sheets 1-2 of 2
22A	24” x 24”x 37 1/2” Deep	Daily	N	Y	Liquid in sump sensor alarms in CM	Control Module	Monthly	Concrete with mastic	Concrete	No secondary containment	CAMDS Specification 63-02	TCDS 87-701-03 Sheet 1 of 1

Notes:

[1] Sump drawings are contained in Attachment 11